CFAO GRADUATE STUDENT POSTERBOARD ABSTRACTS

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Craniofacial Morphology in Children With Obesity and Trisomy 21 With and Without Obstructive Sleep Apnea

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Introduction: Obstructive Sleep Apnea (OSA) is common in children and leads to significant morbidity if left untreated. Risk factors for childhood OSA include adenotonsillar hypertrophy, obesity, and genetic diseases associated with craniofacial abnormalities such as Trisomy 21 (T21). Craniofacial characteristics have been suggested to contribute to OSA in children. The literature regarding the role between craniofacial morphology and OSA is deficient, partly due to limited access to polysomnography (PSG), the gold standard for diagnosing OSA. Presently, a formal orthodontic evaluation is not standard of care for children referred for PSG query OSA. The aim of this study is to compare the prevalence of craniofacial abnormalities in children with suspected OSA who have been referred for a PSG.

Methods: This was a cross-sectional study of children between the ages of 5 and 18 years with a diagnosis of obesity or T21 who were referred for PSG at The Hospital for Sick Children in Toronto. Participants underwent an orthodontic evaluation, PSG, and lateral cephalogram. Participants also completed two sleep questionnaires: 1) Spruyt and Gozal Sleep Questionnaire, and 2) Pediatric Sleep Questionnaire, Sleep-Disordered Breathing Subscale. Research Ethics Board approval was obtained at both The Hospital for Sick Children and the University of Toronto.

Results: Twenty five children (18 M, 7 F) between the ages of 5 and 18 (mean = 11.3) participated in the study. Thirteen (52%) had obesity and 12 (48%) had T21. 83% (n = 10) of T21 patients had mild, moderate, or severe OSA compared to 46% (n = 6) of obese patients, (p = 0.053). T21 patients had less overjet compared to those with obesity (OJ_{T21} = -0.20 mm, OJ_{Ob} = 2.31 mm, p = 0.003). A greater proportion of T21 patients had a narrow palate (T21 = 66.7%, Ob = 15.4%, p=0.009) and macroglossia (T21 = 66.7%, Ob = 15.4%, p=0.009).

Conclusions: A diagnosis of OSA was more common in patients with T21. A retrognathic maxilla, decreased overjet, a narrow palate, and macroglossia may be associated with a diagnosis of OSA.